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EXECUTIVE SUMMARY

Nonpoint source (NPS) pollution continues to be, and is increasingly recognized by the public as the largest remaining source of water quality impairments in the nation. The Nonpoint Source Management Plan, prepared by the Indiana Department of Environmental Management (IDEM), Office of Water Quality (OWQ), reflects the current goals and direction of Indiana's Nonpoint Source Management Program. The report documents the methods the State will use to meet the criteria included in the United States Environmental Protection Agency's (USEPA) nine key elements, which are outlined in its' 2004 supplemental nonpoint source guidelines and required for approval. The report includes the following sections, which are used to address the nine key elements.

Vision and Goals

The vision of the Nonpoint Source Management Program is to restore waters impaired by NPS pollution and support the preservation of water quality through locally led partnerships. In order to achieve this vision, a long-term goal to make measurable improvements in water quality by addressing NPS pollution through planning, implementation, and education was established. The key components of the long-term goal are:

- Identify nonpoint source pollution knowledge gaps and characterize the extent and magnitude of nonpoint source pollution in Indiana;
- Build partnerships to address nonpoint source pollution in Indiana;
- Build capacity to address nonpoint source pollution with all partners; and
- Work towards measurable improvements in water quality by addressing NPS pollution through planning, implementation, and education.

Corresponding program objectives (short-term, midterm, and long-term) will be utilized to reach the long-term goal and program vision. Each objective includes a measure for tracking the success of the program.

Priorities

IDEM has established a hierarchy of funding priorities, which recognizes the importance of successful watershed planning and continued focus on restoring waters impaired by NPS pollution. The current funding priorities are:

- Management planning and implementation in watersheds with waterbodies on the Section 303(d) list of impaired waters and where the impairment is nonpoint sources;
- Management planning and implementation in watersheds with approved total maximum daily loads; and
- Implementation of watershed plans that meet the requirements identified in the IDEM checklist and include the USEPA's nine key elements.

EXECUTIVE SUMMARY

A list of funding priorities and how activities are ranked by IDEM is included.

Implementation

The State's methods and tools for managing and implementing its NPS program efficiently and effectively are outlined in the report. The key components to successful implementation of the program are described and include:

- A list of the IDEM offices which are involved with nonpoint source pollution and how they relate to the program
- A description of how IDEM plans to strengthen working partnerships with other state, federal, local, and private entities involved with NPS pollution prevention
- A description of how 319 grant funds are managed and distributed
- A description of how IDEM will educate its partners and the public on NPS pollution

Monitoring

Monitoring and evaluation are essential to assessing if NPS pollution prevention objectives are being met. This report includes a description of IDEM's monitoring programs for surface and groundwater. The surface water monitoring program is designed to characterize the overall environmental quality of each major river basin and to identify those monitored waterbodies within each basin that are not fully supporting their designated uses. Waters that do not fully support one or more of their designated beneficial uses are placed on Indiana's 303(d) List of Impaired Waters. The 303(d) list sets the basic priorities for the NPS program. Impaired waters are targeted first for watershed-based projects such as total maximum daily loads or 319-funded watershed plans to further characterized pollutant sources, loadings, and develop strategies for addressing NPS pollution.

Review, Revisions and Reports

IDEM will review and evaluate the effectiveness of their Nonpoint Source Management Programs through:

- Evaluating environmental monitoring data to assess changes in environmental quality;
- Reporting on activities through the 319 Nonpoint Source Annual Report; and
- Updating the Nonpoint Source Management Plan at least every 5 years, or when deemed appropriate, or directed by the USEPA.

This plan will be implemented over the next five years and into the future. It will be periodically reviewed and evaluated to determine the effectiveness of the NPS programs using the environmental and functional measures of success outlined as part of the objectives.

ACRONYMS AND ABBREVIATIONS

ABBSSS	Assessment Branch Biological Studies Section Staff
AFO	Animal Feeding Operation
AIMS	Assessment Information Management System
BEACH	Beaches Environmental Assessment and Coastal Health
BMP	Best Management Practice
CAFO	Confined Animal Feeding Operations
CEDS	Comprehensive Economic Development Strategy
CEPP	Chemical Emergency Preparedness and Prevention
CEPO	Chemical Emergency Preparedness and Prevention Office
CRM	Coordinated Resource Management
CRP	Conservation Reserve Program
CSO	Combined Sewer Overflow
CSREES	Cooperative State Research Education and Extension Service
CTAP	Compliance and Technical Assistance Program
CTIC	Conservation Technology Information Center
CWA	Clean Water Act
CWI	Clean Water Indiana
CZARA	Coastal Zone Act Reauthorization Amendments
CZM	Coastal Zone Management
DNP	Division of Nature Preserves
DNR	Department of Natural Resources
DOD	Department of Defense
DOI	Department of the Interior
DOT	Department of Transportation
DQO	Data Quality Objective
DRBC	Delaware River Basin Commission
DWSRF	Drinking Water State Revolving Fund
ECP	Emergency Conservation Program
EDA	Economic Development Administration
EEG	Environmental Education Grants
EMPACT	Environmental Monitoring for Public Access and Community Tracking
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentive Program
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FIP	Forestry Incentives Program
FMA	Flood Mitigation Assistance
FSA	Farm Service Agency
FWS	Fish and Wildlife Service
GIS	Geographic Information System
GLAHNF	Great Lakes Aquatic Habitat Network and Fund
GRTS	Grant Reporting and Tracking System
HUC	Hydrologic Unit Code
IAC	Indiana Administrative Code
IASWCD	Indiana Association of Soil and Water Conservation Districts
ICPRB	Interstate Commission on the Potomac River Basin
IDEM	Indiana Department of Environmental Management

ACRONYMS AND ABBREVIATIONS

IDNR	Indiana Department of Natural Resources
IGS	Indiana Geological Survey
INDOT	Indiana Department of Transportation
IPALCO	Indianapolis Power and Light Company
IPM	Integrated Pest Management
IR	Integrated Report
ISDA	Indiana State Department of Agriculture
ISDH	Indiana State Department of Health
IUP	Intended Use Plan
LA	Load Allocation
LARE	Lake and River Enhancement
LMCP	Lake Michigan Coastal Program
LWD	Large Woody Debris
NFIP	National Flood Insurance Program
NMPCT	Nina Mason Pulliam Charitable Trust
NPL	National Priorities List
NPS	Nonpoint Source
MOS	Margin of Safety
MS4	Municipal Separate Storm Sewer System
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NPS	Non-Point Source
NRCS	Natural Resource Conservation Service
OCRM	Ocean and Coastal Resource Management
OICS	Office of the Indiana State Chemist
ORSANCO	Ohio River Valley Water Sanitation Commission
OWM	Office of Watershed Management
OWQ	Office of Water Quality
OWTS	On-site Wastewater Treatment System
PESP	Pesticide Environmental Stewardship Program
PPL	Project Priority List
PSA	Public Service Announcement
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RC&D	Resource Conservation and Development
RPD	Relative Percent Difference
RMS	Resource Management System
SBA	Small Business Administration
SBA	State Budget Agency
SEAP	Small Business Environmental Assistance Program
SPEA	School of Public and Environmental Affairs
SMA	Streamside Management Area
SMART	Specific, Measurable, Agreed-Upon, Realistic, and Time-Specific
SRF	State Revolving Fund
STAR	Science to Achieve Results
SRBC	Susquehanna River Basin Commission

ACRONYMS AND ABBREVIATIONS

SV	Seasonal Variation
SWCD	Soil and Water Conservation Districts
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USFS	United States Forest Service
USGS	United States Geological Survey
VFS	Vegetated Filter Strips
WBP	Water Bank Program
WebRIT	Web-Based Reach Indexing Tool
WLA	Waste Load Allocation
WQC	Water Quality Certification
WQS	Water Quality Standard
WQX	Water Quality Exchange
WRP	Wetlands Reserve Program

MISSION STATEMENTS

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The Indiana Department of Environmental Management's core mission is to implement federal and state regulations to protect human health and the environment while allowing the environmentally sound operation of industrial, agricultural, commercial, and governmental activities vital to a prosperous economy.

OFFICE OF WATER QUALITY

The Office of Water Quality's mission is to monitor, protect, and improve Indiana's water quality to ensure its continued use as a drinking water source, habitat for wildlife, recreational resource, and economic asset.

The Office achieves this by assessing surface and ground water quality; regulating and monitoring drinking water supplies and wastewater treatment facilities; protecting watersheds and wetlands; and providing outreach and assistance to the regulated community and the public, while supporting environmentally responsible economic development.



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Introduction

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INTRODUCTION

Nonpoint source (NPS) pollution continues to be, and is increasingly recognized by the public as, the largest remaining source of water quality impairments in the nation. Agriculture, forestry, construction, and urban activities are some of the leading nonpoint sources of pollution.

In 1987, Congress recognized the need for greater federal leadership to help focus State and local NPS pollution efforts. To address this need, Congress amended the Clean Water Act (CWA; <http://www.epa.gov/lawsregs/laws/cwa.html>) to establish the Section 319 Nonpoint Source Management Program. Under Section 319, states receive grant money to support a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of NPS implementation projects.

NPS programs, originally developed and approved under Section 319 of the CWA in 1989-90, have enhanced states' technical tools and capabilities, strengthened and increased their partnerships, encouraged the development of a watershed approach solution to NPS pollution, and developed stronger financial bases and legal support for their NPS programs. However, despite these improvements, the states continue to face challenges related to implementing NPS programs that protect existing water quality in unimpaired waters and restore impaired waterbodies. As a result, in 2004, the Environmental Protection Agency (EPA) issued supplemental NPS Program and Grants guidelines. These guidelines were designed to focus attention on waters that have been listed by states under Section 303(d) of the CWA as needing total maximum daily loads (TMDLs). They also addressed the need to improve the EPA's and states' abilities to account for any accomplishments as well as shortcomings in implementing the national NPS program.

Consequently, Section 319 grant funds above the \$100 million authorized level are only available for states with a United States Environmental Protection Agency (USEPA) approved, upgraded NPS management plan that complies with the requirements of the 2004 supplemental guidelines. The EPA guidance presents a list of nine key elements agreed to by the EPA and state-led NPS agencies that characterize an effective and dynamic state NPS program designed to achieve and maintain beneficial uses of waters.

IDEM is providing this update to the State's NPS Plan to more accurately reflect the current goals and direction of Indiana's NPS program, describe the program implementation, and document the methods Indiana will use to meet the criteria included in the nine key elements. This plan describes the program that IDEM will implement over the next five years and into the future. The program will address water quality initiatives and provide guidance in the management of NPS impacts to water resources throughout the State of Indiana.

THE NINE KEY ELEMENTS

The **NINE KEY ELEMENTS** addressed in Indiana's updated NPS Management Plan are summarized below. The locations of the elements addressed in the plan are also included.

Key Element No. 1. The State program contains short-term and long-term goals, objectives, and strategies to protect surface and groundwater.

<i>a. The State program includes a vision statement.</i>	Chapter 2 Page 25
<i>b. The State has specific long-term goals that are linked to its vision and are directed towards the expeditious achievement and maintenance of beneficial uses of water.</i>	Chapter 2 Page 26
<i>c. The State has specific short-term (e.g., 1-5 year) objectives, expressed as activities, that are linked to its goals.</i>	Chapter 2 Pages 27-34
<i>d. The State has identified measures and indicators that will be used to assess the State's success in achieving its goals and objectives.</i>	Chapter 2 Pages 27-34
<i>e. The State has identified specific, expeditious milestones for its activities.</i>	Chapter 2 Pages 27-34
<i>f. State has identified implementation steps and the expected effects of those steps on its water resources.</i>	Chapter 2 Pages 27-34

Key Element No. 2. The State strengthens its working partnerships and linkages with appropriate state, tribal, regional, and local entities (including conservation districts), private sector groups, citizens groups, and federal agencies.

<i>a. The State uses a statewide collaborative team, nonpoint source task force, advisory group, or other appropriate process, to provide for input and recommendations from representatives of federal, state, tribal, and local agencies, private sector groups, and citizens groups, regarding Nonpoint Source Management Program direction, project selection, and other similar aspects of program administration.</i>	Chapter 4 Pages 50-51
<i>b. The team, task force, or advisory group meets regularly and promotes collaborative and inclusive decision-making.</i>	Chapter 4 Page 52
<i>c. The State program specifies procedures to provide for periodic public input into the program.</i>	Chapter 4 Pages 50-52
<i>d. The State effectively incorporates a variety of organizations and interests into its implementation of nonpoint source activities and</i>	Appendix B

THE NINE KEY ELEMENTS

<i>projects.</i>	
<i>e. The State uses its partnerships effectively to avoid the transfer of problems among environmental media.</i>	Chapter 4 Page 54

Key Element No. 3. The State uses a balanced approach that emphasizes both statewide Nonpoint Source Management Programs, and on-the-ground management of individual watersheds where waters are impaired and threatened.

<i>a. Annual or multi-year work plans contain nonpoint source implementation actions directed at both specific priority watersheds, and activities of a statewide nature.</i>	Chapter 4 Page 52
<i>b. The State tracks both statewide activities and watershed projects.</i>	Chapter 1 Pages 16-22
<i>c. The State has institutionalized its program beyond the annual implementation of 319-funded activities and projects.</i>	Chapter 4 Pages 47-49
<i>d. The State uses an integrated watershed approach for assessment, protection, and remediation that is well integrated with other water or natural resource programs.</i>	Chapter 1 Page 22

Key Element No. 4. The State program (a) abates known water quality impairments from nonpoint source pollution and (b) prevents significant threats to water quality from present and future activities.

<i>a. The State has comprehensively characterized water quality impairments and threats throughout the state, which are caused or significantly contributed to by nonpoint sources.</i>	Chapter 1 Pages 18-20
<i>b. The State has comprehensively characterized reasonably foreseeable water quality impairments and threats that are likely to be caused by nonpoint source pollution in the future.</i>	Chapter 1 Pages 18-20
<i>c. The State program addresses all significant nonpoint source categories and subcategories.</i>	Chapter 1 Pages 18-21
<i>d. The State program has identified specific programs to abate pollution from categories of nonpoint sources, which cause or substantially contribute to the impairments identified in its assessments.</i>	Chapter 4 Pages 47-51 Appendix B

THE NINE KEY ELEMENTS

e. <i>The State has identified specific programs to prevent future water quality impairments and threats that are likely to be caused by nonpoint source pollution.</i>	Chapter 4 Pages 47-51 Appendix B
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Key Element No. 5. The State program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the State establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.

a. <i>The State water quality assessments (including those performed under Section 305[b], 319[d], 314, and others), along with analysis of changing land uses within the state, form the basis for the identification of the State's planned nonpoint source activities and projects.</i>	Chapter 5 Pages 57-66
b. <i>The State activities focus on remediating the identified impairments and threats, and on protecting the identified at-risk waters.</i>	Chapter 3 Page 37
c. <i>The State has provided for public participation in the overall identification of problems to be addressed in the state program, and in the establishment of a process to progressively address these problems.</i>	Chapter 4 Page 54
d. <i>The State revises its identification of waters and revisits its process for progressively addressing these problems periodically (e.g., once every five years).</i>	Chapter 6 Page 70

Key Element No. 6. The State reviews, upgrades, and implements all program components required by Section 319(b) of the Clean Water Act, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The state programs include:

- a. A mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and
- b. A mix of regulatory, non-regulatory, financial, and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.

The State includes in its program and implements the following eight items:

1. <i>(a) Identification of the measurements to be used to control nonpoint sources of pollution, focusing on those measures which will be most effective to address the specific types of nonpoint source pollution</i>	Chapter 2 Pages 27-34 Appendix A
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THE NINE KEY ELEMENTS

<i>prevalent within the state. These measures may be individually identified or presented in manuals or compendiums, provided that they are specific and are related to the category or subcategory of nonpoint sources. They may also be identified as part of a watershed approach towards achieving water quality standards, whether locally, within a watershed, or statewide.</i>	
1. <i>(b) Identification of programs to achieve implementation of the measures.</i>	Chapter 4 Pages 47-51 Appendix B
1. <i>(c) Processes used to coordinate and, where appropriate, integrate various programs used to implement nonpoint source controls in the state.</i>	Chapter 4 Page 47
1. <i>(d) A schedule with goals, objectives, and annual milestones for program implementation; legal authorities to implement the program; available resources; and institutional relationships.</i>	Chapter 2 Pages 27-34
1. <i>(e) Sources of funding from federal (other than 319), state, local, and private sources.</i>	Appendix C
1. <i>(f) Identification of federal programs and projects that the State will review for their effects on water quality and their consistency with the State program.</i>	Chapter 5 Pages 57-59 Appendix D
1. <i>(g) Monitoring and other evaluation programs to help determine short-term and long-term program effectiveness.</i>	Chapter 5 Pages 57-64
1. <i>(h) The State program also incorporates or cross-references existing baseline requirements established by other applicable federal or state laws to the extent that they are relevant. Examples include, but are not limited to:</i>	Chapter 4 Pages 50-51 Appendix B

Key Element No. 7. The State identified federal lands and activities, which are not managed consistently with State Nonpoint Source Management Program objectives. Where appropriate, the State seeks EPA assistance to help resolve issues.

a. <i>The State reviews federal financial assistance programs, development projects, and other activities that may result in nonpoint source pollution for consistency with the state program.</i>	Chapter 4 Page 53 Appendix C
b. <i>The State works with federal agencies to resolve potential inconsistencies between federal programs and activities and the state programs.</i>	Chapter 4 Page 53

THE NINE KEY ELEMENTS

c. <i>Where the State cannot resolve federal consistency issues to its satisfaction, it requests EPA assistance to help resolve the issues.</i>	Chapter 4 Page 53
d. <i>The State coordinates with federal agencies to promote consistent activities and programs, and to develop and implement joint or complementary activities and programs.</i>	Chapter 4 Page 50-51

Key Element No. 8. The State manages and implements its Nonpoint Source Management Program efficiently and effectively, including necessary financial management.

a. <i>The State's plans for watershed projects and statewide activities are well designed, with sufficient detail to assure effective implementation.</i>	Chapter 4 Page 47-52
b. <i>The State's watershed projects focus on the critical areas, and critical sources within those areas, that are contributing to nonpoint source problems.</i>	Chapter 4 Page 52
c. <i>The State implements its activities and projects, including all tasks and outputs, in a timely manner.</i>	Chapter 4 Page 52
d. <i>The State has established systems to assure that the State meets its reporting obligations.</i>	Chapter 6
e. <i>The State utilizes the Grants Tracking and Reporting System effectively.</i>	Chapter 4 Page 53
f. <i>The State has developed and uses a fiscal accounting system capable of tracking expenditures of both 319 funds and non-federal match.</i>	Chapter 4 Page 53
g. <i>Nonpoint source projects include appropriate monitoring and/or environmental indicators to gauge effectiveness.</i>	Chapter 5 Pages 60-64

Key Element No. 9. The State periodically reviews and evaluates its Nonpoint Source Management Program using environmental and functional measures of success, and revises its nonpoint source assessment and its management program at least every five years.

a. <i>The State has and uses a process to periodically assess both improvements in water quality and new impairments or threats.</i>	Chapter 6 Page 71
b. <i>The State uses a feedback loop, based on monitoring and other evaluative information, to assess the effectiveness of the program in meeting its goals and objectives, and revises its activities and tailors its annual work plans, as appropriate, in light of its review.</i>	Chapter 6 Page 70

THE NINE KEY ELEMENTS

<i>c. Using its feedback loop, the State periodically reviews and assesses the goals and objectives of the Nonpoint Source Management Program, and revises the program as appropriate in light of its review.</i>	Chapter 6 Page 70
<i>d. The State's annual report successfully portrays the State's progress in meeting milestones, implementing Best Management Practices (BMPs), and achieving water quality goals.</i>	Chapter 6 Page 71

Note: Throughout this Plan, "the State" refers to IDEM, unless otherwise described. IDEM has certain mandates and charges related to the CWA, and cannot presume to speak for other agencies or organizations. In many cases, partnerships with other entities implement activities pursuant to the CWA along with IDEM, but do so voluntarily.

NONPOINT SOURCE POLLUTION

NPS pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks;
- Salt from irrigation practices and acid drainage from abandoned mines; and
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems.

Atmospheric deposition and hydromodification are also sources of NPS pollution.

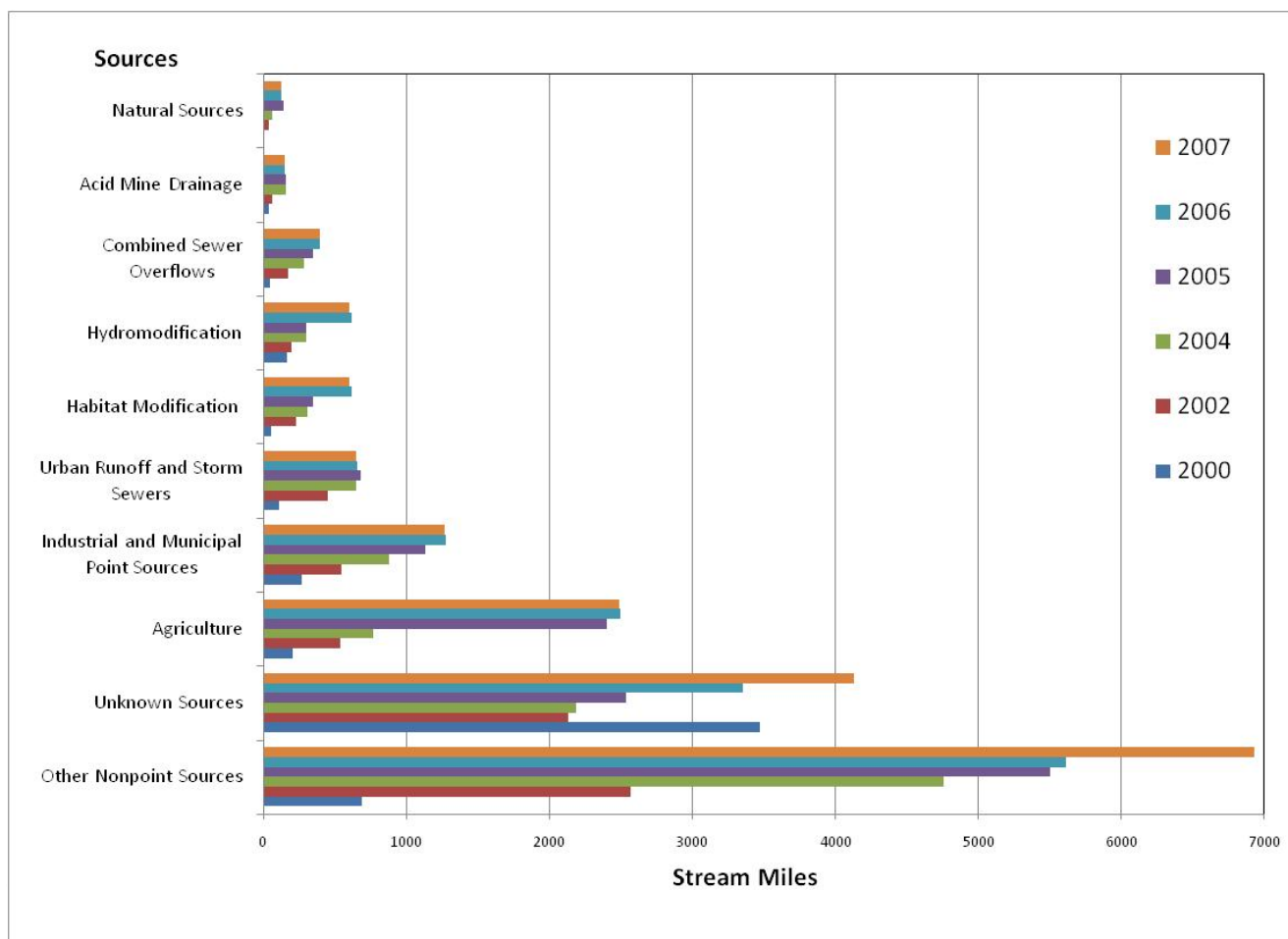
The origins of NPS pollutants are diffuse and often difficult to trace. Human-related origins of NPS pollution that have been identified as most prevalent in Indiana include:

- Animal production operations and feedlots
- Agricultural activities
- Streambank and shoreline erosion
- Timber harvesting
- Land development
- On-site sewage disposal units
- Solid waste disposal landfills
- Transportation-related facilities
- Coal mining
- Oil and gas production
- Non-energy mineral extraction
- Atmospheric deposition

NONPOINT SOURCE POLLUTION

As noted in Figure 1-1, agriculture and other NPS pollution are the major stressors to Indiana's impaired streams.

Figure 1-1
Sources of Stressors and Responses Impairing Indiana's Streams



Source: 2008 *Integrated Water Quality Monitoring and Assessment Report*

INDIANA'S WATER QUALITY – AN OVERVIEW OF CONDITION

Indiana is located on the eastern edge of the North American great interior plains. The North-South continental divide traverses through northern Indiana, draining watersheds into the Great Lakes basin and the Mississippi River and Ohio River systems. Surface water in the northern one-quarter of the state flows north into the Great Lakes and then through the St. Lawrence River to the Atlantic Ocean. The southern three-quarters of the state drain into the Ohio River or Illinois River and flow into the Mississippi River then south to the Gulf of Mexico. There are 35,673 miles of rivers, streams, ditches, and drainage ways in Indiana (Table 1-1).

NONPOINT SOURCE POLLUTION

Table 1-1

Description	Value	Units
Indiana population¹	6,080,485	
Indiana surface area²	36,291	sq. mi.
Total miles of rivers and streams³	35,673	miles
Number of publicly-owned lakes/reservoirs/ponds⁴	575+	
Publicly-owned lakes/reservoirs/ponds⁴	106,205	acres
Great Lakes⁴	154,240	acres
Great Lakes shoreline⁵	59	miles
Fresh water wetlands⁶	813,000	acres

Sources: ¹U.S. Census Bureau ²State Information Center ³Horizon Systems Corporation 1994

⁴USEPA 1993 ⁵Indiana Reach Index ⁶Rolley 1991

Based on current information, 79 percent of the 17,535 stream miles assessed for aquatic life use were found to be fully supporting. Approximately 30 percent of the 12,073 stream miles assessed support full body contact recreational use. Almost all of Indiana's 59 miles of Lake Michigan shoreline outside the Indiana Harbor fully support aquatic life use, while almost none of the Lake Michigan shoreline waters support full body contact recreational use.

Table 1-2 summarizes use supports assessed and reported from 1998 through 2007.

NONPOINT SOURCE POLLUTION

Table 1-2
Summary of Use Support - Assessed and Reported 1998 through 2007

Designated Use	Support	Threatened ¹	Non Support	Assessed	Not Assessed
Rivers (miles)					
Aquatic Life Use	13,913	--	3,622	17,535	14,606
Fishable Uses	1,044	--	3,402	4,435	27,705
Drinking Water Supply	--	--	1	1	101
Recreational Use (Human Health)	3,700	--	8,374	12,073	20,100
Great Lakes Shoreline (miles)					
Aquatic Life Use	59	--		59	--
Fishable Uses	--	--	59	59	--
Drinking Water Supply	33	--		33	--
Recreational Use (Human Health)	--	--	59	59	--
Lake Michigan (acres)					
Fishable Uses	--	--	154,176	154,176	--
Lakes and Reservoirs (acres)					
Aquatic Life Use	3,690	--	6,625	10,315	21,826
Fishable Uses	7,820	--	63,663	71,483	5,084
Drinking Water Supply	230	--	16,385	22,905	12,926
Recreational Use (Human Health)	21,922	--	983	22,905	104,662
Recreational Use (Aesthetics)	29,035	--	8,006	37,041	90,526

Source: IDEM's Assessment Database

THE WATERSHED APPROACH

Protecting our water resources from the impacts of NPS pollution is a complex challenge. Indiana uses a watershed approach as its water quality management strategy to protect and restore water quality. The watershed approach examines and addresses water quality concerns in each water body in the context of its watershed and all the potential sources of pollution the watershed contains.

Environmental problems, such as NPS pollution, often cut across media and political jurisdictions. Consequently, environmental mitigation and protection requires a comprehensive and collaborative approach that works with a multitude of programs and agencies. The watershed approach is a coordinating framework for management that focuses public and private sector efforts to address the highest priority water-related problems within geographic areas, considering both surface and ground water flow. By examining water quality issues on a watershed basis, problems can be observed in relationship to their sources so that the causes can be effectively addressed.

IDEM's ongoing effort to implement the watershed approach includes:

- Ensuring that internal resources are focused on addressing the most significant water quality issues facing Indiana by conducting semi-annual reviews of Office of Water Quality activities and making necessary adjustments
- Improving internal coordination between water quality assessment, watershed planning, and implementation programs to facilitate an integrated watershed management approach to restore impaired waterways
- Improving coordination with local watershed groups, community groups, and other state and federal agencies to leverage efforts and achieve greater improvements in water quality. The large number of nonpoint sources and the fact that they are difficult to regulate make the voluntary efforts of citizens, businesses, service organizations, and other groups an essential part of the effort to address NPS pollution in Indiana

Two key steps needed to solve NPS problems within a watershed context are the development of a watershed-based plan that addresses a waterbody's water quality needs (including the incorporation of any TMDLs that have been developed) and the actual implementation of the plan. Careful analysis of the sources of water quality problems, their relative contributions to the problems, and alternatives to solve those problems, provide the best basis for sound decision-making and implementation that will actually solve those water quality problems. For this reason, IDEM will emphasize using watershed-based planning and implementation processes to realize the long-term goal for the State's NPS Management Program.

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Program Vision, Goals, and Objectives

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PROGRAM VISION

This section addresses *key element 1* in the *NPS Program and Grants Guidance* issued by the USEPA, by presenting Indiana's long-term goal and detailing explicit program objectives and strategies to protect surface and ground water.

The vision of this program is to restore waters impaired by NPS pollution and support the preservation of water quality through locally led partnerships. This vision cannot be realized in a short amount of time, nor can it be realized by IDEM alone. IDEM and its many partners will need to continue to work together on a watershed-by-watershed basis to improve and protect Indiana's water resources. The prevention of NPS pollution requires the cooperation of many groups and agencies at the federal, state, and local levels, as well as all citizens living in the watershed. IDEM cannot accomplish the vision of clean water without the help of many people working together.

LONG-TERM GOAL

This document establishes a strategy to achieve the primary long-term goal for the State of Indiana's NPS program. Achieving this goal relies on the support, cooperation, and resources of IDEM and its partners to address NPS pollution in Indiana. Some goals will be easier to achieve than others. IDEM recognizes that the Plan is a living document and as progress is made towards the achievement of the goals and objectives, the Plan will be reexamined and objectives will be restructured to reflect both progress made and challenges encountered.

The State's long-term goal for the NPS Management Plan is to:

Make measurable improvements in water quality by addressing NPS pollution through planning, implementation, and education.

The Plan works to achieve this goal by providing a single, unified, and coordinated statewide approach to dealing with NPS pollution structured around program objectives. Achievement of the long-term goal will be reached through work on a number of smaller objectives that, taken together, will create processes, programs, and skills needed to improve water quality and reduce NPS pollution. The key components of the long-term goal are listed below.

1. Identify NPS pollution knowledge gaps and characterize the extent and magnitude of NPS pollution in Indiana
2. Build partnerships to address NPS pollution in Indiana
3. Build capacity to address NPS pollution with all partners
4. Work towards measurable improvements in water quality by addressing NPS pollution through planning, implementation, and education

The long-term goal and corresponding program objectives, (short-term, midterm, and long-term) which will be utilized to reach the program vision, are explained in the following sections. In this report, short-term refers to one to two years, midterm refers to three years, and long-term refers to four to five years from the adoption of the Plan. Program objectives are expressed as activities that are linked back to the long-term goal. A quantitative metric to track progress is also included.

PROGRAM OBJECTIVES AND MEASURES

Activities and strategies will be implemented by IDEM to monitor water quality and assess NPS pollution in Indiana waters. Of critical importance is the need to **identify NPS pollution knowledge gaps and characterize the extent and magnitude of NPS pollution in Indiana**. The following objectives and measures will be implemented by IDEM to enhance their existing programs.

Objective A Develop NPS Water Quality Monitoring Strategy

- i. Short-term: Develop a NPS monitoring strategy in conjunction with IDEM's Assessment Branch to evaluate the magnitude and extent of NPS pollution within the State of Indiana.

Measure: Completion of the NPS monitoring strategy.

- ii. Midterm: Target additional resources, such as staff, funds, and technical support to monitor water quality in watersheds where NPS restoration activities have occurred to gauge the efficacy of the work.

Measure: Implementation of the NPS monitoring program and analysis of data collected.

- iii. Long-term: Develop a data quality objective (DQO) process to require performance and acceptance criteria for data collection by third party entities.

Measure: Completion of a third party DQO process, which will serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of the study.

Objective B Develop Data Collection Strategy

- i. Midterm: Develop and implement a system to store and evaluate NPS pollution environmental monitoring data collected in the State of Indiana.

Measure: Completion of a NPS pollution database for the storage and evaluation of data collected by NPS projects.

- ii. Long-term: Develop standard operating procedures to allow third party entities to enter data into the NPS pollution database.

Measure: Development of a web page for use by third party entities to enter data collected for Section 319-funded projects into the NPS database.

PROGRAM OBJECTIVES AND MEASURES

Objective C Develop NPS Pollution Assessment Technology

- i. Long-term: Develop a Geographic Information System (GIS), remote sensing, and other predictive tools to illustrate differences in land use and help demonstrate anthropogenic changes to the landscape that could affect NPS pollution in Indiana waterways.

Measure: Number of tools developed to demonstrate the effects of various land uses on NPS pollution.

Objective D Develop NPS Pollution Assessment Methodology

- i. Midterm: Develop an assessment methodology to characterize the causes of impaired waters listed on the 303(d) list and discern point source pollution from nonpoint source pollution.

Measure: Creation of a formal assessment process that uses best available data to characterize pollutant sources.

- ii. Long-term: Use resulting data to rank watersheds, based on NPS pollution levels, to prioritize the State's restoration efforts and assist state and local partner NPS programs.

Measure: Development of a ranking system for all watersheds in Indiana and assignment of a NPS restoration rank to each watershed.

Partnerships are a key to effective watershed management. Through a partnership, different people and organizations work together to address common interests and concerns. In order to achieve their long-term goal, IDEM is committed to **building partnerships to address NPS pollution in Indiana**. Building successful partnerships takes skill, time, and patience. IDEM will implement the following objectives and measures to build partnerships at the local, state and federal levels.

Objective A Improve USEPA/IDEM NPS Program Coordination

- i. Short-term: Establish a formal schedule of meetings with USEPA to evaluate IDEM's NPS program and obtain feedback on program improvement opportunities and successes.

Measure: Establishment of a fixed communication schedule for program coordination.

Objective B Support the NPS components of the Indiana Department of Natural Resource's (IDNR's) Indiana Coastal Management Program

- i. Short-term: Support the IDNR Coastal Nonpoint Pollution Control Program in obtaining full program approval.

PROGRAM OBJECTIVES AND MEASURES

Measure: Number of conditions resolved through 319-funded efforts.

- ii. Midterm: Develop a collaborative approach between IDEM and the IDNR Coastal Nonpoint Management Program to work on local watershed management planning and implementation efforts.

Measure: Number of projects in the coastal area where IDEM has worked collaboratively through funding, technical support, or other methods with stakeholders in the Lake Michigan watershed.

Objective C Enhance IDEM Programs

- i. Short-term: Focus NPS financial and technical resources in watersheds with approved total maximum daily loads (TMDLs), and implementable watershed plans that are supported by the local watershed group.

Measure: Number of watersheds with approved TMDLs that address NPS pollution impacts and that have Section 319-funded planning or implementation activities occurring.

- ii. Short-term: Work collaboratively with IDEM's assessment program(s) through the establishment of a formal NPS monitoring strategy and resource assistance agreements.

Measure: Creation of a NPS monitoring strategy and internal procedures that identify needed monetary and staffing resources.

- iii. Midterm: Develop and revise, as needed, a comprehensive Watershed Specialist strategy to support IDEM's internal and external partners.

Measure: Completion and implementation of a comprehensive Watershed Specialist strategy.

- iv. Long-term: Implement a formal watershed approach to IDEM program coordination when evaluating permits, policies, and rules related to NPS pollution.

Measure: Development of a formal procedure and staff taskforce to address, on a watershed basis, individual agency actions that may affect NPS pollution.

Objective D Build NPS Partnerships

- i. Short-term: Implement the creation of an advisory group of state and federal agencies and interested entities and organizations to assist with

PROGRAM OBJECTIVES AND MEASURES

establishing funding priorities and refining the State's NPS policy and procedures.

Measure: Creation of an advisory group to the IDEM Section 319 Program on NPS issues that includes representatives from all applicable programs and partnerships, both regulatory and non-regulatory.

- ii. Short-term: Utilize current IDEM Watershed Specialists to assist partners with NPS planning and implementation activities.

Measure: Percentage of partners utilizing a Watershed Specialist for NPS-related activities.

- iii. Midterm: Create a NPS Management Plan workgroup to conduct annual evaluations of the effectiveness of the NPS program and recommend revisions to the Plan.

Measure: Creation of the workgroup and production of an annual report.

- iv. Midterm: Work with surrounding states that share watersheds with Indiana to develop consistent approaches to addressing NPS pollution.

Measure: Creation of standard operating procedures to work with Ohio, Michigan, Illinois, and Kentucky on the coordination of NPS activities within watersheds that span state boundaries.

- v. Long-term: Establish a formal process to maintain an inventory of active watershed groups, organizations, and governmental entities whose primary purpose is to study, plan, or manage NPS pollution and related activities.

Measure: Creation and maintenance of a web-based database of active watershed groups, organizations, and governmental entities whose primary purpose is to study, plan, and manage NPS pollution. The database will be deployed on IDEM's website.

Capacity building means establishing resources needed to achieve a goal. IDEM recognizes that watershed groups and IDEM partners need a range of tools to effectively manage water resources. In addition, the increasing complexity of watershed projects, combined with the difficulties of maintaining volunteer organizations, strain the existence of watershed groups and their ability to protect and restore watersheds. Sustainable watershed partnerships that include citizens, private industry and businesses, and government agencies that are not dependent upon government grants provide the long-term interest and focus needed for effective, local watershed management. Capacity building is also critical to this effort. In an effort to provide additional resources and or tools to assist these entities, IDEM will implement the following objectives and measures related to education and training to support watershed organizations as they manage nonpoint source pollution.

PROGRAM OBJECTIVES AND MEASURES

Objective A Develop Education and Training Initiatives for use at the watershed-level to build capacity of the watershed groups and local governments

- i. Short-term: Update IDEM's NPS website to create a repository for information on NPS planning, implementation, and guidance on applying for and implementing Section 319 grants.

Measure: Completion of updated NPS website and compilation of a utilization survey.

- i. Short-term: Evaluate existing NPS pollution program partners and determine resources (financial and technical) needed to improve program efficacy.

Measure: Development of partner resource needs report.

- ii. Midterm: Develop collaborative training and outreach materials based on needs solicited from partners.

Measure: Number of training and outreach materials distributed.

- ii. Long-term: Create web-based tools to assist local groups with identification of resources, partners, and technical support to create more self-sustaining watershed groups dedicated to addressing NPS pollution.

Measure: Number of IDEM NPS website hits.

- iii. Long-term: Survey and assess knowledge levels, with partner participation, to refine and modify capacity-building needs and existing resources.

Measure: Modify partner participation capacity-building needs based on the results of survey assessment.

Objective B Develop Comprehensive Training Program

- i. Short-term: Develop and conduct training workshops to inform 319 grant recipients about key program policies and provide training on grant implementation.

Measure: Number of Section 319 training workshops conducted by IDEM for all grant recipients.

- ii. Midterm: Develop internal IDEM training manuals and policy documents to ensure clear and consistent grant program implementation.

PROGRAM OBJECTIVES AND MEASURES

Measure: Number of internal training manuals that are utilized for Section 319 implementation and financial management.

- iii. Long-term: Establish self-sustaining programs (train the trainer) to teach watershed leaders, water quality data collectors, and project facilitators to successfully implement watershed plans.

Measure: Development of a multi-agency strategy for assessing needs and developing related skills.

Objective C Improve Public Awareness and Education

- i. Short-term: Increase efforts to educate citizens on urban and agricultural NPS issues through the development of a comprehensive outreach campaign.

Measure: Number of outreach efforts conducted.

- ii. Midterm: Develop a repository of web-based public outreach educational materials for use by internal and external partners and local watershed groups.

Measure: Number of IDEM NPS website hits.

- iii. Long-term: Create a broadly distributed e-newsletter containing information regarding NPS pollution, upcoming training events, available resources, and other relevant information for use by locally led watershed groups.

Measure: Number of e-newsletters utilized (determined by number of hits and length of stay on the website).

Objective D Build Sustainable Locally-Led Watershed Groups

- i. Short-term: Work with active watershed groups to assess resource (technical and financial) needs to enhance or ensure sustainable activities beyond Section 319 funding.

Measure: Number of watershed groups that actively seek and successfully obtain funding in addition to Section 319 to sustain the continual group operation.

- ii. Midterm: Develop tools such as databases, guidance documents, and training events to give watershed groups needed capacity to remain sustainable.

PROGRAM OBJECTIVES AND MEASURES

Measure: Number of tools developed.

- iii. Long-term: Work to create new watershed groups from the ground level, and provide these groups with a strong base for sustainability.

Measure: Number of new watershed groups formed.

IDEM is committed to **working towards measurable improvements in water quality by addressing NPS pollution**. To achieve this goal, it is essential that funding priorities be established, and target pollutants and watersheds be addressed through the use of adaptive management. The following objectives and measures will be utilized by IDEM to address NPS pollution and improve water quality.

Objective A Develop Strategies for Section 319 Planning Funds

- i. Short-term: Target Section 319 funds to watershed groups that will develop and implement watershed plans to address 303(d)-listed waters impaired for NPS pollution.

Measure: Number of watershed groups developing and or implementing watershed plans in 303(d) listed waters receiving Section 319 funds.

- ii. Midterm: Fund projects that address NPS pollution and their impacts to water quality.

Measure: Number of projects funded.

- iii. Midterm: Assess ambient water quality data to identify watersheds which should be evaluated for possible NPS water quality improvements.

Measure: Number of watersheds identified for evaluation of NPS water quality improvements.

- iv. Long-term: Work with internal and external partners to solicit and utilize joint funding strategies, including Section 319 funds, in watersheds where other partner-funded projects are occurring to maximize the efficacy of funds.

Measure: Number of projects funded by Section 319 in connection with other partner funds that document improvements in water quality where NPS pollution was identified and a watershed approach was used to solve the problem.

PROGRAM OBJECTIVES AND MEASURES

Objective B Target Key Pollutants and Watersheds

- i. Short-term: Determine the extent of impacts sediments, bacteria, and nutrients have on Indiana waters.

Measure: Document the results of impact analysis.

- ii. Midterm: Target Section 319 funds to watersheds with waters that are impaired by NPS pollution and where TMDL implementation plans are being executed.

Measure: Number of targeted watersheds that have received Section 319 funds and are currently executing TMDL implementation plans.

- iii. Long-term: Focus Section 319 funds on watersheds that have waters impaired by nutrients upon completion of nutrient standards.

Measure: Percentage of Section 319 funding allocated to waters impaired by nutrients.

Objective C Develop Adaptive Management

- i. Short-term: Work with USEPA to establish a comprehensive adaptive management program with clearly delineated priorities and corrective actions.

Measure: Percentage of program completion.

- ii. Midterm: Establish formal processes to incorporate NPS Advisory Group, social and environmental indicators, and ad hoc in-house evaluation information into improved program policy and direction.

Measure: Number of formal processes incorporated into program policy.

- iii. Long-term: Update the NPS Pollution Management Plan to reflect completed goals, new priorities, and needed corrective actions.

Measure: Percentage of updated Plan completed.

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3

Priorities

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FUNDING PRIORITIES

The State and its NPS partners recognize the increasing magnitude of statewide NPS needs set against the backdrop of limited financial resources. To satisfy *key element 5* and to effectively meet the NPS program goal and objectives, the State of Indiana has begun linking approval of local NPS project funding to a hierarchy of priorities. These priorities include recognizing the importance of successful watershed planning and continued focus on restoring waters impaired by NPS pollution. In some cases, the result is NPS implementation project funding targeted to priority watersheds. In other cases, NPS implementation project funding is linked more directly to the environmental benefit and/or the appropriate connection to specific recommendations in a state endorsed watershed plan or federally approved TMDL. IDEM has identified the following NPS activities that are prioritized to receive Section 319 funds.

- Management planning and implementation in watersheds with waterbodies on the Section 303(d) list of impaired waters and where the impairment is NPS
- Management planning and implementation in watersheds with approved TMDLs
- Implementation of watershed plans that meet the requirements identified in the IDEM checklist and include the USEPA's nine required elements

Creating comprehensive watershed management plans is an effective method to focus efforts and resources on a watershed and its particular problems, as well as develop solutions. In the process, local stakeholders join together to develop plans that evaluate and address conditions found in that watershed. Linkage between NPS project implementation, watershed planning and TMDLs is an additional tool that allows the State of Indiana to more effectively focus limited funding on projects that can result in the elimination of known NPS causes of impairment, restoration of impaired waters, and ultimately improve water quality.

Before a watershed management plan can be implemented using Section 319(h) funds, it must meet the required elements of IDEM's Watershed Management Plan Checklist. The checklist incorporates USEPA's nine minimum components of a watershed-based plan and is provided in IDEM's Watershed Management Plan Guidance document. The guidance document is found on the following website: <http://www.in.gov/idem/catalog/documents/water/iwpg.pdf>.

Approved NPS Management Program funded activities or projects must lead to accomplishing the objectives stated in the approved NPS Management Plan. Grant work plans must link the funded activities or projects to the relevant elements of Indiana's NPS management Plan. Work plans should indicate which federal, state, and local agencies are responsible for implementing each project or activity.

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IDEM realizes that it is important to consider how Section 319 funding can be used in a way that does not duplicate, but rather complements, other environmental protection programs (i.e. coastal, wetlands, watershed planning, ambient monitoring programs, etc.). Section 319 funding is critical to support NPS projects that are not eligible for funding by other partner agencies. Project activities targeted for Section 319 funding are described below. Project activities are based on the type of human activity or NPS pollution addressed within the context of Section 319. The funding priority rankings are defined as follows:

1. Funding Priority 1 – Categories with this ranking are eligible for inclusion in Section 319 grant applications as the category has a high impact on water quality and can reasonably be addressed at a local watershed level. Activities in the given category would be chosen first to address NPS pollution in critical areas.
2. Funding Priority 2 – Categories with this ranking are potentially eligible for inclusion in Section 319 grant applications, provided applicants can demonstrate within a given watershed that all Funding Priority 1 categories have been addressed by previous activities. IDEM will consider funding of these on a case-by-case basis.
3. Funding Priority 3 – Categories with this ranking are likely not eligible for inclusion in a Section 319 application, but could be counted as match towards grant activities, provided linkages to grant application work are documented. Many NPS sources in these categories will require statewide solutions or expenditures of funds that far exceed the capacity of the 319 program.

Each category is assigned a relative value for its overall impact to water quality, based in part on information collected through IDEM's water quality monitoring efforts. This value is independent of the funding priority, which is defined as the rank this category receives by IDEM when Section 319 grant applications are evaluated.

For each category, a range of methods to address the target source of NPS pollution can be utilized. Education and outreach plays a critical role in addressing NPS pollution – outreach and education is fundable by Section 319 funds in all categories. The list of project activity categories described below is listed in alphabetical order, not order of priority.

1. Agricultural Management

The goal of these project activities is to reduce sediment, nutrient, pesticide, and pathogen loading from crop and livestock production. Projects should utilize practices, measures, and management methods that will reduce sediment delivery to surface waters; reduce loadings of nutrients, pesticides, and pathogens into surface and groundwater; and provide educational opportunities to promote new sediment reduction and new pollution control technologies. Farms that participate in a watershed project and wish to receive Section 319 funds must have a nutrient and pesticide management plan developed with the assistance of Conservation Partnership personnel or a



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Certified Crop Advisor. The Nutrient and Pest Management Checklist provided by NRCS may be used to document this planning activity. Farm fields, where Best Management Practices are installed with cost share from a Section 319 grant, must utilize appropriate conservation tillage practices.

Note: Farms that require NPDES permits, under the Confined Feeding Rule or subsequent rules, are not eligible for cost share from a Section 319 grant for any practices required by the permit.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – HIGH
- FUNDING PRIORITY 1

2. Atmospheric Deposition

The goal of these project activities is to reduce transfer of pollutants between air and water media, and abate deposition of NPS pollutants through atmospheric transport. Projects should incorporate practices, measures, and management methods that will reduce the transfer of pollutants between air and water media. Projects should assess available data to determine the relative contribution of atmospheric pollutants in common NPS pollution situations. Any such assessment must result in practical and feasible recommendations for pollution abatement. Projects should consult with IDEM's Office of Air Quality.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – MEDIUM
- FUNDING PRIORITY 2

3. Closed Landfills and Solid Waste Disposal Sites

The goal of these project activities is to reduce polluted runoff from solid waste disposal activities. Projects should utilize practices, measures, and management methods that will reduce pollutants in runoff from landfill sites.

Note: Grants may not be used to fund attainment of any permit requirements or to treat end-of-pipe discharges. Project sponsors are encouraged to explore linkages with the IDEM Office of Land Quality and local Solid Waste Management Districts.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – LOW
- FUNDING PRIORITY 3

4. Groundwater

The goal of these project activities is to prevent the discharge of NPS pollution to groundwater, aid in the reduction of NPS pollution discharges to groundwater, and aid in the cleanup of NPS

FUNDING PRIORITIES

pollution in groundwater. Projects should use practices, measures, and management methods that will reduce the transfer of NPS pollution to groundwater.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – MEDIUM
- FUNDING PRIORITY 2

5. Hydromodification

The goal of these project activities is to improve water quality and aquatic ecosystems through the assessment, research, and remediation of anthropogenic activities that have altered the pre-European settlement hydrology of Indiana streams and lakes. This extends broadly to dams, channelization, hydraulically inadequate structures, impediments to fish passage, alteration of normal water levels due to increased or decreased flows, and water removals. In all cases, a clear link to nonpoint source pollution must be demonstrated. Possible activities could include dam removal, channel redesign, or modifications to existing structures. Research and assessment of the effects and possible solutions to hydromodification are eligible activities. Funding priority for activities in this category will be contingent on the scope of the project and the potential water quality benefits within a given watershed or a large geographic area.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – HIGH
- FUNDING PRIORITY 3 (contingent)

6. Land Application of Non-Agricultural Wastes

The goal of these project activities is to reduce polluted runoff from land application of nonagricultural wastes. Projects should incorporate practices, measures, and management methods that will reduce pollutant loading from land application of non-agricultural wastes. Project plans must take into account soil characteristics, soil conditions, and hydrogeologic vulnerability.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – LOW
- FUNDING PRIORITY 3

7. Land Development

The goal of these project activities is to prevent or reduce polluted runoff and habitat degradation resulting from land development or brownfield redevelopment activities. Projects should incorporate practices, measures, and management methods that will preclude or reduce erosion and pollutant loading from land development, or redevelopment of brownfields or other contaminated sites. Projects may provide education opportunities to promote technologies that avert or reduce the environmental impact of land development or land redevelopment. Projects should include consideration of present and planned impervious areas, stormwater runoff, quality of runoff water, groundwater quality, effects on groundwater, stream and lake hydrology,

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and stormwater management. Project sponsors are encouraged to explore linkages with other grant sources and other agencies that have jurisdiction or provide assistance in the area. Projects that promote innovative planning techniques and practices are encouraged; green infrastructure and low impact development techniques are preferred activities.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – HIGH
- FUNDING PRIORITY 1

8. Natural Resource Extraction

The goal of these project activities is to reduce polluted runoff into streams and lakes from present and past coal extraction activities, oil and gas production, and non-energy mineral extraction. Projects should utilize practices, measures, and management methods that will reduce sediment, acid drainage, and other pollutant loading from these activities. This includes oil and gas waste products, and sediment and brine. Projects may also provide education opportunities leading to remediation of abandoned mines and well sites. Project sponsors should work with IDNR Division of Reclamation, IDNR Division of Oil and Gas, and, where possible, the Office of Surface Mining.

Note: Grant funds cannot be used for measures required by any permit.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – MEDIUM
- FUNDING PRIORITY 2

9. On-Site Sewage Disposal

The goal of these project activities is to reduce pollutant loading to streams, lakes, and groundwater from inappropriately installed or failed on-site sewage disposal systems. Projects should utilize practices, measures, and management methods that will reduce pollutant loading to surface or groundwater from improper disposal of residential wastes. They may also provide education opportunities to promote new technologies that can reduce pollutants from residential waste. Project plans should consider soil type, hydrogeologic vulnerability, applicable rules and regulations, and economic factors. Project sponsors are encouraged to collaborate with local health departments in developing proposals.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – HIGH
- FUNDING PRIORITY 3

10. Sediment Removal

The goal of these project activities is to reduce pollutant loading to streams and lakes from the accumulation of sediments that either on their own or due to the presence of NPS pollutants are adversely affecting water quality. Dredging projects intended to remove contaminated

FUNDING PRIORITIES

sediments that are hindering the development of a healthy aquatic ecosystem are considered eligible under Section 319, however, dredging to improve drainage, for flood control, to increase reservoir capacity, or to improve navigation, are not eligible.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – MEDIUM
- FUNDING PRIORITY 3

11. Stream Bank/Shoreline Erosion

The goal of these project activities is to reduce or remediate the erosion of stream banks and lake shorelines and the associated loss or degradation of aquatic habitat. Projects should utilize practices, measures, and management methods that will reduce stream bank and shoreline erosion from agricultural practices, land development, transportation, or other causes; establish riparian vegetation; improve aquatic habitat; and provide educational opportunities to promote new habitat protection or enhancement technologies. Other aspects of a project could include innovative drainage maintenance practices, such as two-stage ditches. Projects may include the promotion of in-stream and riparian habitat, vegetation preservation, and restoration of critical habitat types such as wetlands. Stream bank and shoreline erosion control project plans must take into account the hydrologic system of the watershed above the project area, any planned or existing hydrologic modifications, land use and land use trends, and applicable laws and restrictions. Aquatic habitat enhancement projects should be coordinated with the Lake and River Enhancement Program of the Indiana Department of Natural Resources (IDNR), as well as other programs and resources that can assist in project design.



CATEGORY RANKING:

- NPS REDUCTION LEVEL – LOW
- FUNDING PRIORITY 3

12. Timber Management

The goal of these project activities is to reduce polluted runoff from timber harvesting and to minimize the environmental impact of forestland conversion. Projects should utilize practices, measures, and management methods that will reduce pollutant loading from timber harvesting activities or reduce loss of forests due to land use changes. Practices may include establishing or protecting riparian vegetation and improving aquatic habitat. Projects should provide educational opportunities to promote new timber harvesting technology with environmental benefits. Project plans should take into account forest management activities associated with timber harvesting, grazing of woodlands with livestock or overabundant wildlife populations, forestation practices, conversion of forestland to other uses, and the preservation of forested wetlands.

FUNDING PRIORITIES

CATEGORY RANKING:

- NPS REDUCTION LEVEL – HIGH
- FUNDING PRIORITY 2

13. Transportation

The goal of these project activities is to reduce polluted runoff from transportation facilities and transportation facility construction. Projects should incorporate practices, measures, and management methods that will reduce pollutants in stormwater runoff originating from transportation-related facilities. The focus of the project may be on either transportation-related construction or existing transportation facilities. Project sponsors are encouraged to explore linkages with the Indiana Department of Transportation (INDOT) for funding and project design. Applicants should take into account the IDNR rules written for boating activities for lakes.

CATEGORY RANKING:

- NPS REDUCTION LEVEL – MEDIUM
- FUNDING PRIORITY 2



BEST MANAGEMENT PRACTICES

The term Best Management Practice (BMP) applies to structural and management practices that are used in agriculture, forestry, urban land development, and industry to reduce the potential for damage to natural resources from human activities. A BMP may be structural; i.e., something that is built or involves changes in landforms or equipment, or it may be managerial; i.e., a specific way of using or handling infrastructure or resources. All Section 319 grant-funded management practices must have technical credibility as evidenced by standards and specifications in a manual or handbook approved for use in the State of Indiana. A partial list of acceptable management measures is included in Appendix A

To be considered a BMP, a practice must have been selected through a conscious planning process designed to inventory resources and needs, determine available alternatives, weigh their benefits, and make decisions. In addition, after the selection and implementation of practices have been completed, follow up needs to include monitoring and evaluation to verify the desired effect.

Primary sources for standards and specifications for BMPs appropriate to Indiana are detailed in Appendix A and listed below:

- National Management Measures to Control Nonpoint Source Pollution from Urban Areas; USEPA, 2005
- National Management Measures to Control Nonpoint Pollution from Agriculture; USEPA, 2003
- National Management Measures to Control Nonpoint Pollution from Forestry; USEPA, 2005
- National Management Measures to Control Nonpoint Pollution from Marinas and Recreational Boating; USEPA, 2001
- National Management Measures to Control Nonpoint Pollution from Hydromodification; USEPA, 2007
- National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution; USEPA, 2005

BMPs are selected to address specific NPS pollution problems and are considered in relation to impacts on surface water. However, consideration must also be given to possible impacts on groundwater. The selection of BMPs must weigh expected benefits against impairments.

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Implementation

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IMPLEMENTATION

Chapter 4 satisfies *key element 8* in the *NPS Program and Grants Guidance* by outlining the State's methods and tools for managing and implementing its NPS program efficiently and effectively. This section details the procedures and protocols IDEM will implement to address agency coordination, planning, financial management, and education. These activities are the foundation of a successful NPS program.

Although IDEM has a lead role in developing and coordinating the implementation of the NPS Management Plan in the State of Indiana, IDEM is not solely responsible for solving the problem. Many local, state, and federal agencies have authorities, programs, or responsibilities relating to the control of NPS pollution. Coordinating and focusing such a large number of entities to produce an effective NPS Management Program poses many challenges. While increased use of regulatory authorities have helped to address certain categories of NPS pollution, such as the issuance of National Pollutant Discharge Elimination System (NPDES) permits for the most significant municipal storm water discharges, Indiana will need to rely on a wide range of tools, activities, and authorities to address NPS pollution statewide.

Within IDEM, there are a number of programs that work to address NPS pollution through regulatory and non-regulatory approaches. A goal of IDEM is to strengthen internal communication between these programs to improve the exchange of information, coordinate program activities, and create new approaches to addressing NPS pollution with existing resources. In 2007, IDEM's OWQ created the Watershed Initiative Task Force to verify whether resources were being allocated effectively to improve water quality in Indiana. The task force is comprised of members from all programs within the OWQ and is intended to improve the communication between programs and maximize resource effectiveness. A key function of this group is to evaluate target watersheds, gauge watershed-based efforts to improve water quality, and recommend new approaches for IDEM programs to directly assist or improve the overall condition of water quality in the target watershed and on a larger programmatic level.

The following section summarizes the primary purpose of each IDEM program that addresses NPS pollution, notes its applicable legal authority, and links its role to IDEM's NPS Plan.

The NPS Program, which is part of IDEM's OWQ, has the responsibility of administering Section 319 and Section 205(j) grant programs to fund education, planning, and implement activities targeted to reduce NPS pollution. The program also coordinates and implements major sections of the NPS Plan through grants, internal and external coordination with partners, and builds capacity on the state and local levels. Several other OWQ programs are linked to the NPS Program, including:

- The Water Specialist Program, which provides direct support for all aspects of watershed planning and implementation work on the local level.
- The Storm Water Program, which provides regulation of:
 - Large municipal storm water dischargers;
 - Storm water associated with industrial activity (Rule 6);
 - Storm water associated with construction activity (Rule 5); and
 - Storm water associated with municipal separate storm sewer systems (Rule 13).

IMPLEMENTATION

The Storm Water Program coordinates permit review and compliance activities with the NPS Program and can work to address NPS pollution issues. More information is available at <http://www.in.gov/ideM/permits/water/wastewater/wetwthr/storm/index.html>.

- The TMDL Program, which develops TMDL reports to characterize, on a watershed level, the extent and sources of water quality impairments and develop required load reductions for the targeted pollutant. The TMDL program also provides information and technical support to watershed groups through water quality monitoring, data exchange, load reduction assistance, and development of locally led partnerships. More information is available at <http://www.in.gov/ideM/programs/water/tmdl/>.
- The Water Quality Assessment Program, which monitors water chemistry, biology, and habitat of streams and lakes to determine if a given waterbody is impaired. The program determines potential sources of pollution and the effects of water quality improvement activities in a given watershed. Data and analysis can be used to assess:
 - Sources of NPS pollution;
 - To determine the efficiency of Section 319 funded projects; and
 - To determine water quality trends of a watershed basis.More information is available at <http://www.in.gov/ideM/programs/water/quality/>.
- The Source Water Program, which provides assessments to public water suppliers regarding the degree to which the drinking water source may be impacted by a potential source of contamination. Results from assessments can be used by watershed groups and partners to identify possible water quality trends on a watershed basis. More information is available at <http://www.in.gov/ideM/programs/water/swp/>.
- The Wetland Program, which provides regulation regarding the alteration of streams, wetlands, and lakes by activities involving the placement of dredged or fill materials. The program coordinates permit review and compliance activities with the NPS Program and can work to address NPS pollution issues. More information is available at <http://www.in.gov/ideM/programs/water/401/index.html>.

The IDEM Office of Land also administers several programs, which are linked to the NPS Program, including:

- The Confined Feeding Program, which provides oversight to assure that animal waste storage structures are designed, constructed, and maintained to be structurally sound, and that manure is handled, and land applied, in an environmentally acceptable manner. The program coordinates permit review and compliance activities with the NPS Program and can work to address NPS pollution issues. More information is available at <http://www.in.gov/ideM/agriculture/livestock/cfo/index.html>.

IMPLEMENTATION

- The Land Application Program, which regulates the application of biodegradable sludge. The program coordinates permit review and compliance activities with the NPS Program and can work to address NPS pollution issues. More information is available at <http://www.in.gov/idem/permits/guide/waste/landapplication.html>.
- The Solid Waste/Landfill Program, which regulates the siting, construction, and maintenance of facilities designed to hold solid and hazardous wastes. The program coordinates permit review and compliance activities with the NPS Program and can work to address NPS pollution issues. More information is available at <http://www.in.gov/idem/programs/land/sw/index.html>.

The IDEM Office of Pollution Prevention and Technical Assistance also administers several programs, which are linked to the NPS Program, including:

- The Compliance and Technical Assistance Program (CTAP), Indiana's small business environmental assistance program (SEAP), which provides free and confidential environmental assistance to Indiana businesses. The program provides NPS pollution source elimination services to small businesses. More information is available at www.in.gov/idem/compliance/ctap/index.html.
- The Pollution Prevention Program, which promotes pollution prevention, including NPS pollution reduction or elimination, to Indiana industry and within IDEM. This program also provides information on BMP for storm water quality. More information is available at www.in.gov/idem/prevention/.
- The Community Environmental Health and Education Program, which educates the public on various environmental topics including NPS pollution through the "Indiana Environment and You" curriculum and through school presentation. The program is also beginning an outreach effort to educate the public on phosphorus in fertilizer. More information is available at www.in.gov/idem/your_environment/education/index.html.

AGENCY COORDINATION

The State understands the importance of seeking input from interested parties in determining program direction. Processes and programs for determining those watersheds in need of restoration, protection, or maintenance are located primarily at IDEM, but the State strives to involve federal, state, local, and private partners to improve and protect Indiana's water resources. The activities carried out by these programs include funding prioritization (Chapter 3.0), monitoring (Chapter 5.1), and planning, assessment, and public education. These activities, to be effective, need to be integrated throughout all levels of society and geographic settings: surface and ground water, lakes and streams, and hydrology and landscape.

To satisfy the requirements of *key element 2* in the *NPS Program and Grants Guidance*, IDEM is actively strengthening working partnerships with appropriate federal and state agencies, regional and local entities, and private sector and citizen groups. One of IDEM's objectives for this program is to build partnerships that address NPS pollution in Indiana. IDEM will achieve this objective by:

- Conducting annual meetings with USEPA to evaluate IDEM's NPS Program and obtain comments regarding needed improvements and program successes.
- Identifying funding opportunities with the IDNR Coastal Management Program to assist with the approval of a final Coastal Zone Plan.
- Developing collaborative grant processes and funding priorities to support NPS restoration projects in the coastal zone that will improve water quality.
- Focusing NPS financial and technical resources in watersheds with approved TMDLs by working closely with IDEM's TMDL Section and local watershed groups, to address planning and implementation issues in those watersheds.
- Developing partnerships with IDEM's assessment programs through the establishment of formal NPS monitoring strategies and resource assistance agreements.
- Developing watershed-based approaches to the evaluation of permits, policy, and rules related to NPS pollution.
- Developing and revising, as needed, a comprehensive Watershed Specialist strategy for the support of IDEM's internal and external partners.
- Implementing an advisory group of state and federal agencies and local/regional coordinators to assist with priority setting and policy and procedure refinement.
- Strengthening the existing NPS team by adding representatives from permitting programs that have an impact on NPS pollution.
- Utilizing current IDEM Watershed Specialists to assist internal and external partners with NPS planning and implementation activities.

AGENCY COORDINATION

- Creating a NPS Management Plan workgroup to conduct annual evaluations and recommend revisions to the Plan.
- Working with other states that share watersheds with Indiana to develop consistent approaches to addressing NPS pollution.
- Establishing a formal process to maintain an inventory of active watershed groups, organizations, and governmental entities whose primary purpose is study, planning, or management of NPS pollution and related activities.

The integration of state NPS management programs with other environmental programs provides a vehicle for cooperative design and implementation of watershed-based plans in a coordinated manner that employs the resources, authorities, and expertise of all relevant programs. A comprehensive list of key partner agencies including their functions is included in Appendix B.

PLANNING

When monitoring and assessment are complete and priorities have been set, mandated and informal planning sets the stage for implementation. Mandated planning activities, such as this document, and the comprehensive planning process required of all states by USEPA, has statewide impact. Mandated planning activities can also focus on individual watersheds or the development of TMDLs. Non-mandated planning activities include watershed project plans developed at the local level and diagnostic and feasibility studies carried out under the IDNR Lake and River Enhancement Program, as examples.

A Work Plan outlining planned activities for the subsequent year will be included as part of the annual *319 NPS Grant Program Report*. The report will identify section 319-funded projects and BMPs designed to reduce NPS pollution, along with a conceptual implementation schedule. In addition to NPS pollution-control implementation projects, BMP construction, and educational programs, the report will describe the specific activities carried out by IDEM under its base operating program during the same period.

To satisfy *key element 3* in the *NPS Program and Grants Guidance* issued by USEPA, IDEM uses a balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds where waters are impaired and threatened. To do this, the NPS program and the State's partners advocate a watershed planning process built on local level, consensus-based decision making. This process is useful for project planning watersheds where local citizen groups play a vital role in water resource management.

<http://www.in.gov/idem/programs/water/wsp/watershedmgmtinfo.html>

Financial Management

The NPS/TMDL Section in the Office of Water Quality manages two federal pass-through grant programs aimed at improving water quality in Indiana: Section 319(h) and Section 205(j), each named for the Clean Water Act's authorizing section. The 205(j) grant program is dedicated to water quality management planning. Funds are used to determine the nature, extent, and causes of point and NPS pollution, and to develop planning documents.

The 319(h) grant program is the primary grant program for supporting both IDEM NPS programs and many locally led watershed-planning efforts. Funds may be used to conduct assessments, develop and implement TMDLs and watershed management plans, provide technical assistance, demonstrate new technology, and provide education and outreach. Nonprofit organizations, universities, and local, state, or federal agencies are eligible for funding. A 40 percent (non-federal) in-kind or cash match of the total grant cost must be provided. Each year, funding proposals are submitted, reviewed by a committee, and selected based on NPS program funding priorities and the quality of the proposal. In addition, emphasis is placed on project partners and documentation of their commitment to the project. Strong partnerships are a key to project success.

General information about the two grant programs in Indiana may be found on IDEM's website:

<http://www.in.gov/idem/programs/water/wsp/index.html>.

A summary of the Section 319(h) and 205(j) funding programs and other potential funding sources are included in Appendix C.

Matching Funds and In-Kind Resources

Matching funds and in-kind resources must be directly associated with the project and for work done to fulfill the contract tasks. Federal dollars may not be used to match Section 319 grant funds, since Section 319 funds are also federal dollars. All activities eligible for grant funds are eligible to be documented as match, excluding the federal sources mentioned above or services provided by the IDNR/Division of Soil Conservation Resource Specialists, Urban Conservation Specialists, and Agricultural Specialists. Activities that are not eligible for grant funds are also not eligible for match funds. Match funds may be used for land easements, in cases where the sponsor can remain responsible for the continuance of the easement until its conclusion, and where the purpose is to restore vegetation, hydrologic function, or some other characteristic that will have a positive effect on water quality. The time invested by a farmer or other participant in a project is also an allowable in-kind match and should be assigned an appropriate hourly value. Specific details on the Section 319 program, including requirements, eligibility, and staff contacts, can be obtained from the following website:

http://www.in.gov/idem/resources/grants_loans/319h/index.html

EDUCATION

Educating the public and partners is an important step in controlling NPS pollution and improving and maintaining the quality of water resources for current and future generations. Education, or capacity building, is vital to addressing NPS pollution, as the dissemination of information, increase of skills, and exchange of ideas help to build a stronger statewide cadre of NPS managers. In order to protect, enhance, and restore Indiana's water quality, one of the State's long-term goals is to build public interest, increase citizen knowledge, and provide awareness of existing environmental conditions. Short-term objectives include:

- Development of a comprehensive outreach program to educate citizens on urban and agricultural NPS issues
- Production of a repository of readily available, web-based outreach materials designed to increase public knowledge of NPS issues
- Creation of a broadly distributed e-newsletter containing information on NPS issues, training events, and other relevant information

IDEM is continually seeking ways to build capacity around the state in an effort to strengthen the effectiveness of groups working to achieve water quality goals and show measurable results. The objective is to promote the organizational development and growth of local watershed partnerships and stakeholders committed to improving and maintaining the natural and economic resources of their watersheds; provide training and technical assistance to these groups so they can better address watershed-based problems; and help develop sustainable solutions. IDEM partners with a number of groups and organizations to build capacity statewide through efforts such as training watershed coordinators and other water resource professionals, providing needed tools to help groups fulfill their mission and achieve their goals, and educating citizens and professionals on reducing NPS pollution and documenting the success of their efforts.

The State has been and will continue to track and maintain basic project information in EPA's Grant Reporting and Tracking System (GRTS) database for all Section 319-funded projects. Tracked project elements include the project schedule, budget, description, BMPs implemented, estimated pollutant load reductions, and progress reports. Projects implementing BMPs are also stored in the web-based Reach Indexing Tool (WebRIT). The WebRIT is an Internet mapping tool that allows users to provide and update location data for a wide variety of water programs.

To help users identify locations, the WebRIT provides point and click tools along with reference data from various EPA and non-EPA data sources. The current WebRIT application supports users under the 319 and BEACH (Beaches Environmental Assessment and Coastal Health) Act grant programs, as well as the National Pollutant Discharge Elimination System (NPDES) permit applicants. This data is available to the public for their use from the following website: <http://www.epa.gov/waters/tools/>

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Monitoring, Evaluation, and Assessment

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INTRODUCTION

Monitoring and evaluation are essential to assessing if NPS pollution prevention objectives are being met. IDEM's Office of Water Quality (OWQ) assesses the quality of Indiana's waters using a rotating basin approach. The rotating basin plan (Figure 5-1) makes it possible to update water quality assessments on a five-year cycle for monitored watersheds throughout the state and ensures that the information available for planning and watershed management activities is no more than five years old. Approximately one-fifth of the State's waters (1-2 basins) are assessed for support of aquatic life, fishing, and recreational uses each year. The monitoring program is designed to characterize the overall environmental quality of each major river basin and to identify those monitored waterbodies within each basin that are not fully supporting their designated uses. Waters that do not fully support one or more of their designated beneficial uses are placed on Indiana's 303(d) List of Impaired Waters.

Figure 5-1
IDEM's Rotating Basin Monitoring, Assessment, Reporting and Listing Schedule

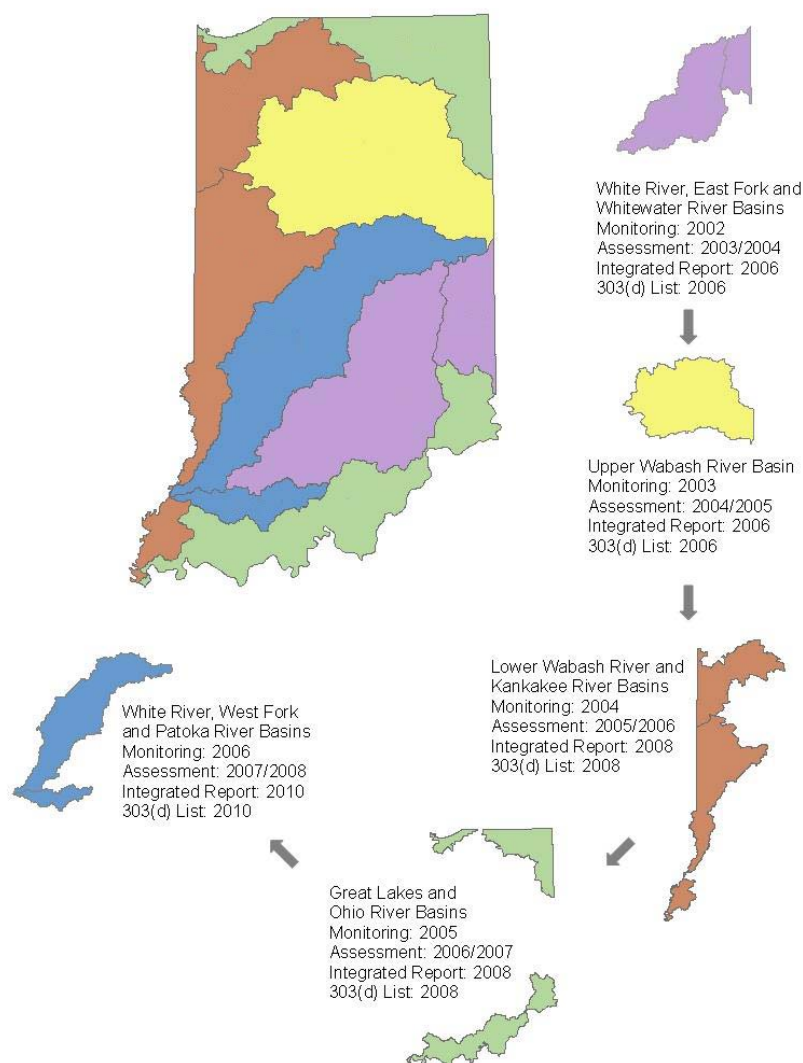
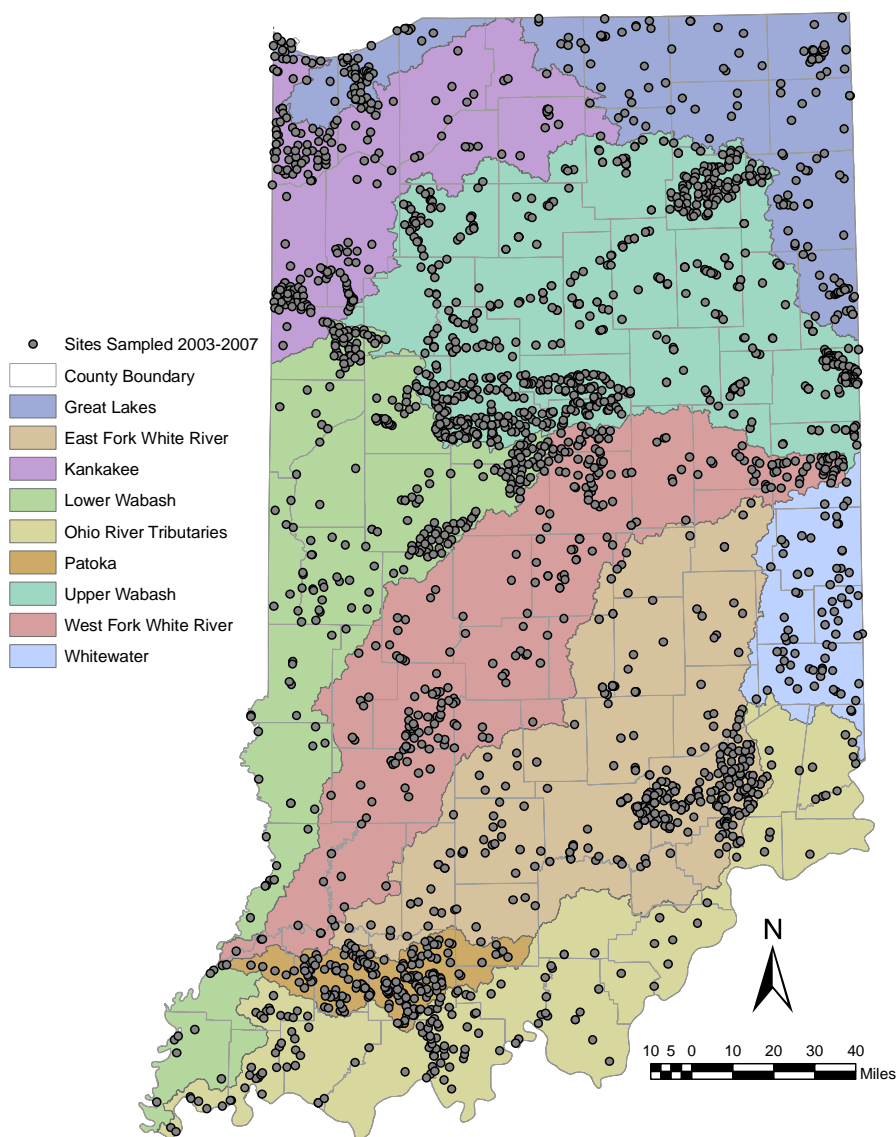


Figure 5-2 shows the monitoring locations for all of IDEM's sampling programs and illustrates the sampling density achieved through IDEM's water quality monitoring strategy over the past five years (2003-2007).

Figure 5-2
Monitoring Locations for IDEM Sampling Programs



The 303(d) list sets the basic priorities for IDEM's NPS Program. Impaired waters are targeted first for watershed-based projects such as TMDLs or 319-funded watershed plans to further characterize pollutant sources, loadings, and develop strategies for addressing NPS pollution. Another important IDEM goal is to augment the existing monitoring program to address waters where watershed improvement work has occurred, which could be funded through IDEM or

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other NPS-partners, and determine the scope and extent of water quality improvements. This step is critical, as data derived from the earlier work will determine additional needs within a given watershed or target approaches that were successful in addressing the pollutants of concern.

A detailed analysis of current water quality condition and IDEM program efforts to assess ambient water quality is located in the 2008 *Integrated Water Quality Monitoring and Assessment Report* at: [http://www.in.gov/idem/programs/water/305\(b\)/index.html](http://www.in.gov/idem/programs/water/305(b)/index.html)

MONITORING

As Indiana continues to strengthen its' focus on restoring waters that have been listed as impaired on their Section 303(d) list, as well as protect waters that are currently not impaired, it is critical that Indiana monitor both:

- The progress the State is making towards achieving and maintaining water quality standards; and
- The implementation of their programs and projects to assure that they are successfully executed.

Consequently, data collected as part of the monitoring programs is utilized to:

- Assist with TMDL development for NPS impacted watersheds.
- Prepare data collection guidelines and standard operating procedures to make existing and future databases compatible. Standard procedures will be useful in determining long-term trends and comparing potential water quality improvement of selected BMPs.
- Refine and standardize field assessment and data interpretation techniques to improve NPS assessments and ensure future trend evaluations are based on consistent and reliable indicators.
- Create programs to enhance the public's knowledge of NPS pollution problems and solutions, and solicit the public's interest and participation in water-quality improvement programs.

To determine their success in implementing the State's NPS management program, IDEM has identified measures associated with each of their short-term, midterm, and long-term objectives, as noted in Chapter 2.0. The performance of these measures, which are designed to lead to the achievement of the State's long-term goal, indicate progress towards achieving and maintaining beneficial uses of water.

All watershed projects, funded by IDEM, that are designed to implement a watershed-based plan must describe how the plan's monitoring component will be used to evaluate the effectiveness of the implementation efforts over time, measured against the specific criteria that are established in the watershed plan. The criteria against which the progress is being monitored should be designed to focus on whether loading reductions are being achieved over time and substantial progress is being made towards attaining or maintaining water quality standards. This can be achieved through watershed-scale monitoring to measure the impacts of multiple programs, projects, and trends over time.

The State's monitoring program consists of three distinct efforts: surface water monitoring, groundwater monitoring, and third party monitoring.

MONITORING

Surface Water Monitoring

The Office of Water Quality's surface water quality monitoring strategy is designed to describe the overall environmental quality of each major river basin, and to identify monitored waterbodies that do not fully support designated uses. The monitoring strategy allows IDEM to continue to meet the goal of assessing all waters of the state within 5 years, while enhancing support of the other OWQ programs. The monitoring strategy and fact sheets (IDEM 2001) with detailed descriptions of the monitoring programs are available at:

<http://www.in.gov/idem/programs/water/quality/>

Groundwater Monitoring

Understanding the interconnections of groundwater and surface water is fundamental to the development of effective integrated water-resource management and policy. Management of a single component of the hydrologic system, such as a stream or an aquifer, commonly is only partly effective because each hydrologic component is in continuing interaction with other components.

It has been noted, in select areas across Indiana, that surface water quality standards and criteria cannot be met without reducing contaminant loads from groundwater discharges to streams. Sampling groundwater in specific settings across the State and targeting those areas within hydrogeologic connection of impaired waterbodies will complete the water cycle of knowledge, and enable targeting of the resource where contamination is most prevalent.

The goal of the IDEM Groundwater Section is to protect and assess Indiana's source water. The Groundwater Section provides guidance for public water systems in establishing Wellhead Protection Plans and Source Water Assessment Plans, as well as providing guidance to private well owners. They work closely with IDEM's Watershed Planning Section.

www.in.gov/idem/programs/water/swp/assess/index.html

Third Party Monitoring Programs

IDEM works with a number of external organizations to obtain data for potential use in water quality assessment processes. IDEM recognizes that many organizations, such as other state and federal agencies, cities, universities, and volunteer groups collect water quality data that is exceptionally valuable to measuring the scope and extent of NPS pollution in Indiana. IDEM's OWQ has begun development of a framework for soliciting and using this data in the process of developing the 303(d) list of impaired waters and in other programs, such as the TMDL and NPS programs. The goals of this project include:



MONITORING

- Identifying IDEM processes for which external organizations would like to see their data used (e.g., education, planning, TMDL development, 305(b) assessment, 303(d) listing, etc.);
- Developing an effective data solicitation process;
- Developing a data quality ranking system and criteria specific for each type of proposed use; and
- Developing a process for providing technical assistance to help organizations meet the data quality criteria necessary for the process in which they want their data considered.

In 2007, it was determined that a broad data solicitation prior to having the external data framework fully developed would provide a fuller understanding of the variety of organizations that are collecting water quality data in Indiana, the types of data they are collecting, and its relative data quality. IDEM solicited data from:

- Relevant programs at every college and university in the State;
- Environmental groups and interested citizens identified through various sources;
- Hoosier Riverwatch - Indiana's statewide volunteer monitoring program;
- Drinking water utilities;
- County health departments and the Indiana State Department of Health (ISDH);
- County Soil and Water Conservation Districts (SWCD) (via the Indiana Association of Soil and Water Conservation Districts [IASWCD]);
- Municipal Separate Storm Sewer System (MS4) entities and Combined Sewer Overflow (CSO) communities;
- Federal agencies (United States Geological Survey [USGS], United States Forest Service [USFS], etc.); and
- State professional organizations (Indiana Water Resources Association., Indiana Association of Cities and Towns, etc.).

Results from this solicitation have also helped to identify where IDEM should focus its solicitation and technical assistance efforts to achieve a greater response from the water quality monitoring community at large. In total, IDEM sent solicitations by email or letter to approximately 670 individual organizations that fall into one or more of the categories in the above list. In response to this solicitation, IDEM received more than one hundred water quality data packages and reports from forty-one individual organizations. A summary of the types of organizations that responded with data is provided in Table 5-1.

Table 5-1
Summary of results from IDEM's external data solicitation, conducted in 2007

Type of Organization	Number that Submitted Data
Cities and Towns	14
County Soil and Water Conservation Districts (SWCD)	8
Watershed Groups and Environmental Organizations	6
County Health Departments	5
Colleges and Universities	2
Private Drinking Water Utilities	1
County Surveyors	1
Resource Conservation and Development Areas (RC&D)	1
Regional Planning Commissions	1
Parks and Recreation Departments	1
Other State Agencies	1

The chemical and physical data sets received from the 2007 solicitation are presently being reviewed to determine their usability in IDEM's 305(b)/303(d) processes and to synthesize the information they contain relative to the development of IDEM's external data framework. IDEM is also reviewing projects conducted with funding from IDNR Lake and River Enhancement Program and projects funded through IDEM's Section 319 and 205(j) programs.

A subset of third party monitoring is volunteer monitoring. Volunteer monitoring programs encourage grassroots involvement in water quality monitoring and foster cooperation among citizens, schools, organizations, and various units of government. Indiana has numerous active volunteer stream monitoring groups including a statewide volunteer program, a successful volunteer lake-monitoring program, and an adopt-a-wetland program.

Hoosier Riverwatch is a state-sponsored water quality monitoring initiative. The program was started in 1994 to increase public awareness of water quality issues and concerns by training volunteers to monitor stream water quality. The following actions are performed through Hoosier Riverwatch's collaboration with agencies and volunteers.

- Provide education and training on watersheds and the relationship between land use and water quality
- Increase public involvement in water quality issues
- Promote responsible stewardship of water resources
- Provide water quality information to citizens and government officials working to protect Indiana's rivers and streams

MONITORING

Hoosier Riverwatch is sponsored by the Indiana Division of Fish and Wildlife (IDNR). Funding is provided in part by the Federal Sport Fish Restoration Fund.

Hoosier Riverwatch:

<http://www.in.gov/dnr/8561.htm>

In order to conserve the fascinating and valuable wetlands in our communities, the Indiana Adopt-A-Wetland Program was developed. Wetland conservation in Indiana is primarily accomplished by local, community-based groups called "focus areas." Individual citizens can help create focus areas to protect a wetland by adopting one in your community. The project website provides resources for citizens interested in starting a locally led program.

Adopt-A-Wetland:

<http://www.in.gov/wetlands/adoptwet/index.html>

The Indiana Clean Lakes Program was created in 1989 as a program within the IDEM Office of Water Quality. The program is administered through a Section 319 grant to Indiana University's School of Public and Environmental Affairs (SPEA) in Bloomington. The Indiana Clean Lakes Program is a comprehensive, statewide public lake management program having five components:

1. Public information and education;
2. Technical assistance;
3. Volunteer lake monitoring;
4. Lake water quality assessment; and
5. Coordination with other state and federal lake programs.

Indiana Clean Lakes Program:

<http://www.spea.indiana.edu/clp/>

Together, these data collection approaches serve to define the scope and extent of NPS pollution in Indiana. In the near term, developing methods to utilize this data to ascertain the efficiency of NPS programs in Indiana is critical to the successful implementation of the NPS Plan. The State and its partners must continue to explore and develop new ways to assess water quality and use that data to make improvements to existing programs, target resources to critical areas, and develop new methods that will have a direct positive impact on water quality across all types and sources of NPS pollution.

EVALUATION STRATEGIES

In an effort to measure the effectiveness of Indiana's NPS program, the NPS/TMDL Section developed an evaluation strategy framework that is updated annually. The goal of this strategy is to develop and use indicators, both social and environmental, to establish baselines; to improve performance-monitoring systems, including a description at both the state level and project level of evaluation activities; to document what the State and citizens do, and the impact of those actions on the environment; and to integrate the NPS program with the monitoring and assessment programs. The strategy will be implemented in a graded/stepwise approach with full implementation of the strategy into the NPS program by September 30, 2009.

Evaluation framework goals include:

- Developing indicators to improve performance-monitoring systems: administrative, environmental, and social.
- Developing logic models with indicators that will be used to evaluate successes and failures of the 319 program and 319 projects.
- Integrating NPS program monitoring results with the Assessment Information Management System (AIMS) database in the Assessment Branch or an acceptable alternative.
- Providing a mechanism for front-end, formative, and summative evaluations.
- Describing the strategy's adaptive management process by which evaluation results will "feedback" into the project and statewide.
- Integrating the evaluation framework goals into the 319 program.
- Identifying a schedule, with milestones, for fully implementing the evaluation strategy.

The full strategy is included as Appendix E.

ASSESSMENT

Assessment allows IDEM to identify waterbodies that are not managed consistently with the NPS program objectives, including federal lands. The assessment process satisfies *key element 7* in the *NPS Program and Grants Guidance* issued by USEPA.

Water quality data analyzed by the Assessment Branch and other state agencies is used to assess water quality for *Indiana's Integrated Water Quality Monitoring and Assessment Report*. The report identifies the waters that fail to meet Indiana's water quality standards. The Integrated Report (IR) is published in even-number years and includes the Section 305(b) Water Quality Report and Consolidated List. The goal of the IR is to determine the number of stream miles, coastline miles, and lake acres that do not meet designated uses so that remediation or restoration programs can be implemented. The IR contains waterbody specific assessments for all designated uses, and comprehensive basin-wide assessments for aquatic life use. Waterbodies that do not meet the State's water quality standards for one or more designated uses are considered impaired and are placed on Indiana's 303(d) List of Impaired Waters, Category 5 of the Consolidated List published with the IR.

Assessing the effectiveness of the overall statewide NPS program will combine the results from project or watershed evaluations with the broader regional or statewide evaluations. The results will include trends in water quality, aquatic biological conditions, target audience knowledge of NPS problems, and other environmental and social indicators. Presently, the assessment approaches include results from ambient water chemistry monitoring, fish and macro invertebrate community surveys, fish tissue analysis, sediment chemistry sampling, habitat assessments, visual observations, photographs, watershed land use assessments, and limited social and behavioral information. Data generated from the monitoring activities may, when available, be used to assess watersheds and determine their baseline results and trends.

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Review, Revisions, and Reports

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INTRODUCTION

To satisfy *key element 9* in the *NPS Program and Grants Guidance* issued by USEPA, states must periodically review and evaluate the effectiveness of their NPS programs using environmental and functional measures of success, and modify the programs at least every 5 years. IDEM developed the following review, revision, and reporting strategies to satisfy *key element 9*.



REVIEW AND REVISIONS

In the future, IDEM will review the implementation progress of the **Indiana NPS Management Plan** by:

- Evaluating environmental monitoring data to assess changes in environmental quality;
- Reporting on activities through the *319 NPS Annual Report*; and
- Updating the Plan at least every 5 years or when deemed appropriate or directed by USEPA.

Initially, implementation will focus significant resources on program objectives and measure identified in Chapter 2 of this document. IDEM will have the ability to revise the short-term objectives of the overall program annually to reflect changing priorities and conditions in the State's watersheds. Modifications and/or amendments will be submitted to USEPA Region V when substantial changes or additions to the existing Plan are required due to changes in federal or state legislation or other events. In cooperation with USEPA Region V, IDEM will determine when such amendments are warranted.

PROGRESS REPORTS

Program accountability is critical to reassure the public of the State's commitment to deal with the NPS pollution problem. The NPS Management Plan contains actions that will result in consistent and timely evaluation and reporting of the Program's progress in effectively dealing with NPS pollution. This includes annual, biennial, and five-year reporting cycles and the use of web-based interactive information tools.

Each year when the *319 NPS Grant Program Report* is submitted to USEPA, there is an opportunity to evaluate progress in meeting the goals and responsibilities of the **Indiana NPS Management Plan**. In previous years, the NPS program report was primarily a discussion of the Section 319 grants program, with general information from partner agencies related to their conservation programs.

Since Federal Fiscal Year (FFY) 2000, the *319 NPS Grant Program Report* contains an evaluation and discussion of each goal of the **Indiana NPS Management Plan**, and contains information on goal progress. The *319 NPS Grant Program Report* also includes information from partner agencies on watershed restoration projects and project results, in accordance with USEPA Region V's goal to capture this information. The location, cost, and effectiveness of practices implemented are reported in as much detail as partner agencies' information collection procedures allow.

The *319 NPS Grant Program Report* is posted on the Internet. Members of the NPS Management Plan Review Committee and partner agencies will be alerted to the opportunity to comment on the State's NPS progress, and identify issues that may need to be addressed in future plans or through amendments to the existing Plan.

Section 319 NPS Grant Program Annual Report:

http://www.in.gov/idem/programs/water/wsp/docs/2007annual_report_final.pdf